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The Israeli Defense Force's Operational Synchronization During the Six Day War of 1967 (U)

by

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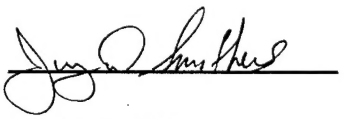
A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: 

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Abstract of

THE ISRAELI DEFENSE FORCE'S
OPERATIONAL SYNCHRONIZATION DURING THE SIX DAY WAR OF 1967

This paper examines the synchronization of Israel's major air and ground operations in the Sinai Campaign of the 1967 Arab-Israeli Six Day War. It first provides a short background on operational synchronization. This is followed by a detailed analysis of the synchronization of Israel's military actions and operational functions during the employment phase of the campaign. It shows that the synergistic effect of Israel's air and ground actions efficiently neutralized Egypt's forces in the Sinai and achieved their operational objectives. The operational lessons learned as a result of Israel's success in the Sinai Campaign highlight several prerequisites for successful synchronization. These include: realistic objectives, a clear commander's intent, sound command and control, simplicity, a full intelligence picture, and sufficient logistics for force sustainment.

PREFACE

In the months prior to the Arab-Israeli Six Day War in 1967, Egypt's President Gamel Abdel Nasser deployed seven divisions of troops into the Sinai, blockaded the Straight of Tiran and verbally threatened war with Israel. As a result, Israel initiated a preemptive war with the strategic objective of survival--to emerge from the war in a superior military, political and economic position relative to its Arab neighbors. On Monday morning, 5 June 1967, Israel initiated the war with a preemptive air strike against Egypt. Within the first six hours of the war, Israel had destroyed most of the Egyptian Air Force (EAF) and gained air superiority over the Sinai. Within four days Israel had completely routed the Egyptian forces in the Sinai and conquered the Sinai Peninsula. After six days, Israel occupied the Gaza Strip, had seized the area of the West Bank from Jordan and the Golan Heights from Syria. The Israeli Defense Force's (IDF) quick victory during this war was legendary. This success can be attributed to a number of factors, one of the most important was the IDF's use of the various aspects of operational art. Israel's top military leaders were extremely effective operational planners and their effective use of the fundamentals of operational design were instrumental to this military success.

The purpose of this paper is to analyze the IDF's synchronization during the Sinai Campaign of the 1967 Arab-Israeli War. This campaign is an excellent case study of operational synchronization and highlights the following prerequisites for effective synchronization: clear, attainable objectives; a clear commander's intent; sound command and control (C2); simplicity; a full intelligence picture; and proper force sustainment.

Although the Israelis synchronized all phases of the war, only the synchronization of the military actions and functions during the employment phase of the Sinai Campaign will be

analyzed in this paper. The effectiveness of Israel's synchronization will be deduced by first analyzing the coordinated actions and effects of their major air and ground operations in the Sinai Campaign; and second by analyzing their synchronization of the operational functions. Finally, the analysis will relate lessons from the Six Day War that are applicable to the present day military professional.

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CHAPTER I

THEORETICAL FRAMEWORK

Operational synchronization is an important element of operational design and is critical to the success of a major operation or campaign. NWC 4091 defines synchronization as the arrangement of actions by one's own and friendly forces in time, space and purpose to produce maximum relative combat power at a decisive place and time.[1] The key to proper synchronization is the **effect** achieved through the effective arrangement of **actions**. Lynch provides a good holistic description of the relationship between actions and effects in the synchronization process. He concludes that each action creates an effect on the enemy that occurs over a certain time frame or "window" in a particular medium such as air, space, land or sea . Synchronization occurs when an operational commander, through his vision, arranges the "windows" of effects of various actions precisely, so they overlap and expand, thus creating a synergistic effect in one or more mediums.[2] The actions can be either sequential or simultaneous; however, the effects of these actions should interact in an efficient manner to produce the desired results in accordance with the operational commander's vision. The true measure of effectiveness of synchronization is the ability to concentrate relative combat power to neutralize the enemy's center of gravity (COG).[3] This can be done by directly attacking the enemy's COG or indirectly, by attacking his critical vulnerabilities to neutralize his COG. The important consideration here is not necessarily the concentration of forces, but the concentration of effects at the decisive time and place because at the operational level, the actions and effects of various forces can be separated in time and place, but to achieve synchronization, their combined consequences must produce a

synergistic effect that is felt at the decisive time and place. To accomplish this synergistic effect, synchronization planning and execution must focus on the operational objectives. Additionally, by concentrating the effects on achieving the operational objectives, the commander achieves economy of force by not wasting the effects of combat actions at a place other than the sector of main effort.[4]

The campaign plan is the operational commander's scheme for the proper synchronization of the effects of air, land, sea and space forces into a cohesive and synergistic whole to achieve unity of purpose. Through the successful concentration of forces in time and place, the enemy's tempo and cohesion can be disrupted and his plan desynchronized. Synchronization at the operational level is broader in scope and more complex than at the tactical level because of the more complicated space, time and force factors. However, the operational commander must still be concerned with the synchronization of actions at all levels of war because their effects should be mutually supporting. Unity of effort based on the common understanding of the commander's intent and effective command and control is critical to the synchronization of actions at all levels of war and the successful accomplishment of the campaign.[5]

Operational synchronization can be planned and executed in the employment of both military and nonmilitary means, and organized for each of the major stages of force employment, from mobilization and pre-deployment to the post hostilities phase. The operational commander must also synchronize the operational functions in support of major operations or campaigns.[6]

CHAPTER II

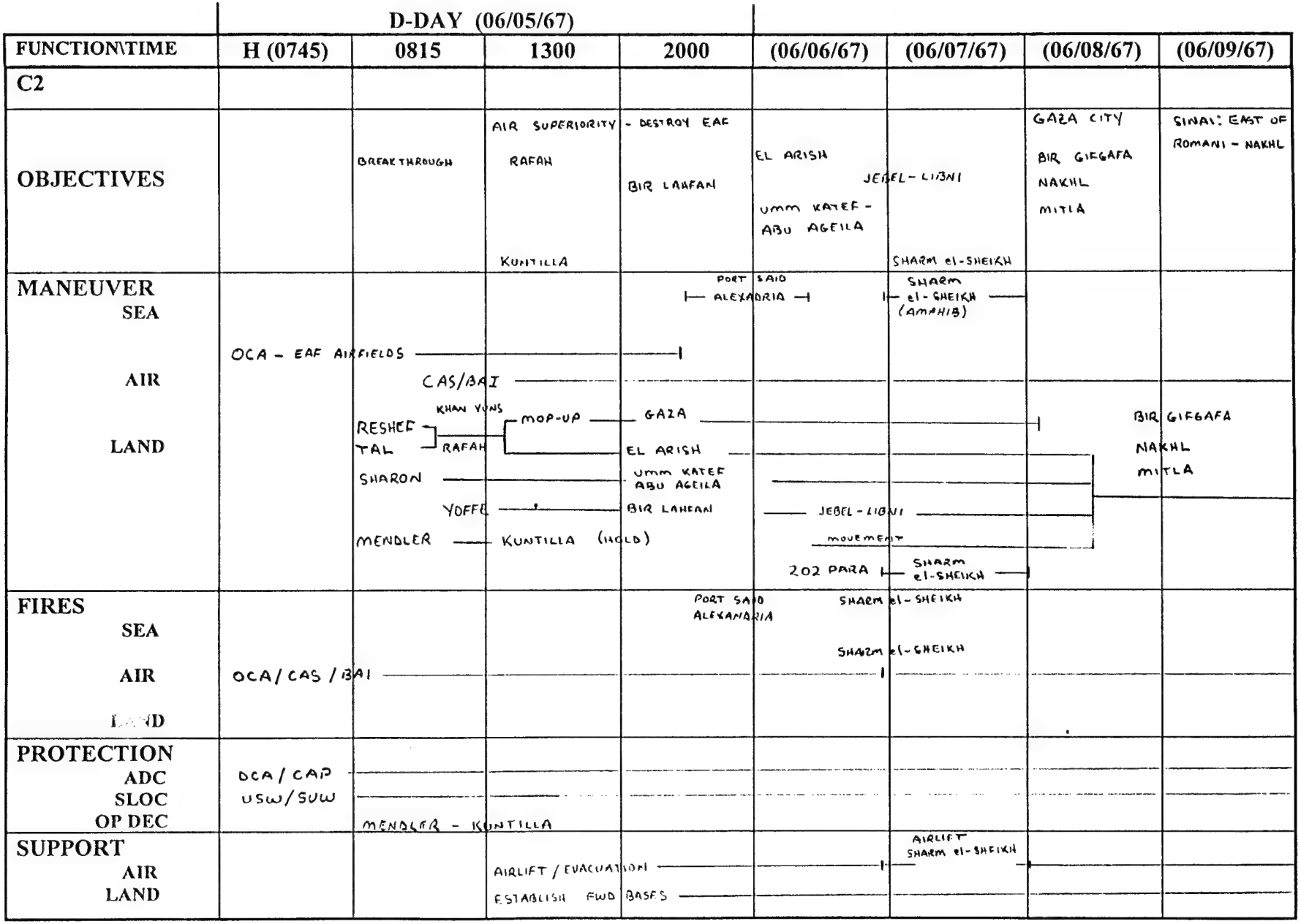
SYNCHRONIZATION OF THE MAJOR AIR AND GROUND OPERATIONS IN THE SINAI CAMPAIGN

Israel's strategic objectives of the Sinai Campaign were to defeat the Egyptian forces massed in the eastern Sinai Peninsula and force Egypt to open the Straight of Tiran. The Israeli Defense Forces (IDF) planned on accomplishing these objectives through synchronized major air and ground operations, and a series of naval engagements in the Mediterranean Sea. (See Figures 1 and 2).

Israel initiated the campaign with the major air operation. Its operational objectives were to destroy the Egyptian Air Force (EAF) and achieve air superiority over the Sinai allowing their air and ground forces to have freedom of action. Immediately following the first wave of the air operation, five separate elements of Israel's ground forces began a major thrust into the Sinai to take advantage of the shock effect of the initial air strikes to further overwhelm the Egyptian defenses. The operational objectives of the major ground operation were: destroy the Egyptian forces in the Sinai; capture Sharm el-Sheikh to open the Straight of Tiran; and occupy the Sinai east of a line from Romani to Nakhl.

The Sinai Campaign also included naval engagements against Egyptian naval assets at Port Said and Alexandria during the night of June 5. These two engagements effectively forced the Egyptians to deploy their Mediterranean Fleet out of the area of operations where it would not be a threat to Israel's Sinai operations.[7]

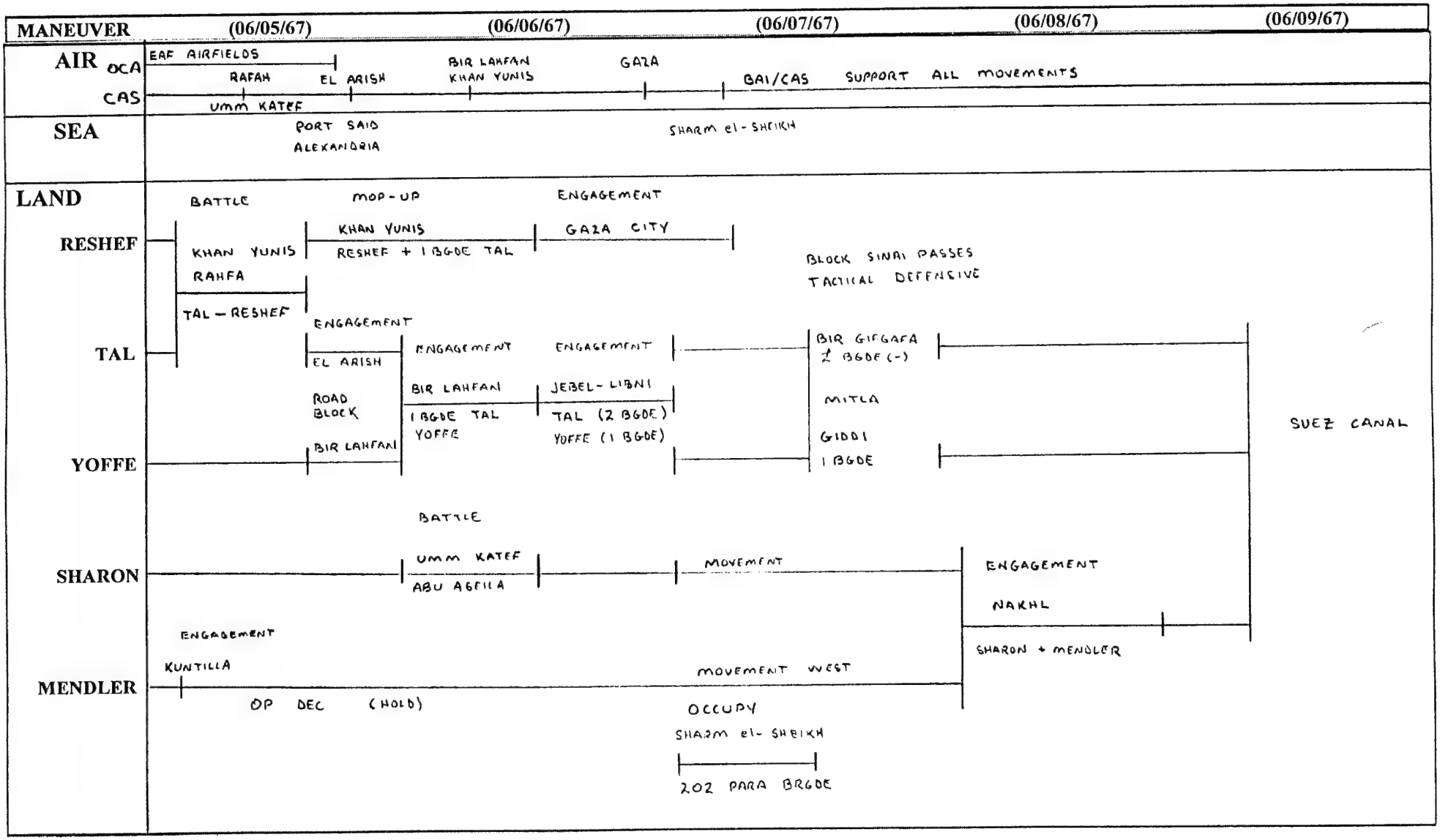
FIGURE 1
JOINT OPERATIONAL SYNCHRONIZATION MATRIX



NOTE: This matrix shows Israel's plan for synchronizing its forces and operational functions in the Sinai Campaign. It was derived by the author.

FIGURE 2

JOINT MANEUVER SYNCHRONIZATION MATRIX



NOTE: This matrix shows the actual results of Israel's air, land and sea movements and maneuver in the Sinai Campaign. It was derived by the author.

Synchronization of the Major Air Operation; 5 June

The Israeli Air Force (IAF) calculated the most efficient method of accomplishing its operational objectives of destroying the EAF and achieving air superiority was a massive surprise attack on Egyptian air bases. This would saturate and paralyze the Egyptian air defenses while destroying the EAF on the ground. Targets were prioritized to destroy Egypt's most threatening assets first. The target priority was: 1) Tu-16 and Il-28 bombers which could strike Israel; 2) MIG-21s, the highest performance EAF aircraft; and 3) MIG-19, MIG-17, and Su-7, fighter-bombers which could attack IDF ground forces. This target priority was adhered to with the exception of four forward airfields in the Sinai that were attacked during the first wave to prevent the launch of defensive sorties that could have disrupted the raids timing.[8] This target selection ensured that the EAF sortie delivery capacity was immediately effected because any undamaged aircraft could attack the next wave of incoming IAF fighters or attack the Israeli ground forces.

The initial strike was planned against ten airfields - four in the Sinai, one near the Suez Canal, three that based Tu-16 and Il-28s, and two MIG-21 bases. Air defense radar sites were authorized targets of opportunity.[9] The IAF avoided the accepted procedure of attacking early warning (EW) and air defense assets first because it allowed them to concentrate their efforts toward achieving the objective of destroying the EAF. Egyptian air defense assets were targeted for phase two of the major air operation.[10]

Phase one of the major air operation consisted of four sequential waves of 40 aircraft, where each wave consisted of ten flights of four aircraft attacking each of the ten airfields for a total of 160 aircraft. Each successive wave was sequenced ten minutes behind the preceding wave. Each flight was scheduled to be over the target area seven minutes with a

three minute pad for navigational error or extra delivery passes. Three minutes after the first flight left the target area, the next four-ship arrived. All targets in the first wave were struck nearly simultaneously except for the airfield at Fayid which was delayed because ground fog obscured the target area.[11] The total effect was to provide an almost continuous wave of aircraft over the Egyptian targets, thus saturating their defenses. After a ten to twenty minute pause, this sequence was repeated again for phase two targets.

The synchronization of the strikes was simple. The takeoff time of each flight was based on the time over target (TOT) backed up by the en route flight time to target. Therefore, the aircraft in the first wave took off between 0710 -0730 so their initial TOT would be 0745 Israeli time. The actual TOTs of the first strikes were nearly simultaneous. (See Table 1). Allocation of aircraft was based on aircraft performance, level of threat at each target, and the attack capabilities of each type of aircraft. After landing, each aircraft was quickly regenerated by maintenance crews in preparation for phase two. Each IAF aircraft was over its target for the second time within approximately 60 minutes of its first attack.[12] (See Table 2).

The effects achieved by the synchronized attacks were remarkable. The first strike phase destroyed 189 EAF aircraft on the ground and eight MIG-21s in the air. This resulted in the destruction of all Sinai-based EAF assets and the destruction of six airfields. The second phase further destroyed 107 EAF aircraft including all of the EAF bomber force and damaged 19 air fields. Air superiority over the Sinai was achieved in six hours thus achieving the IAF's operational objectives. According to Brig General Mordechai Hod, the IAF Commander, the operation was executed 95 percent as planned.[13]

TABLE 1

SEQUENCING OF AIRFIELD ATTACKS: 5 JUNE

AIRFIELD	INITIAL TOT (ISRAELI TIME)
Abu Suweir	0745
El Arish	0745
Bir Gifgafa	0745
Bir el Thamada	0745
Cairo West	0745
Fayid	0750*
Jebel Libni	0745
Inchas	0745
Kabrit	0745
Beni Suef	0815
El Mansura	1000
Helwan	1000
Minya	1015
Bilbeis	1200
Hurghada	1215
Luxor	1230
Cairo International	1715
Ras Banas	1800

Source: B.L. Blustone and J.P. Peak, Air Superiority and Airfield Attack: Lessons From History (Washington: BDM Corporation, 1984), 225.

* Time approximate. Planned TOT was delayed a couple of minutes due to ground fog obscuring the target area.

TABLE 2

TYPICAL SORTIE TIMING

Time en route to target	23 minutes
Time over target	10 minutes
Time return to base	20 minutes
Ground turn time	8 minutes
Total time	61 minutes

Source: W.J. Kotsch, "The Six Day War of 1967," United States Naval Institute Proceedings June 1968, 74.

Synchronization of the Major Ground Operation: 5-9 June

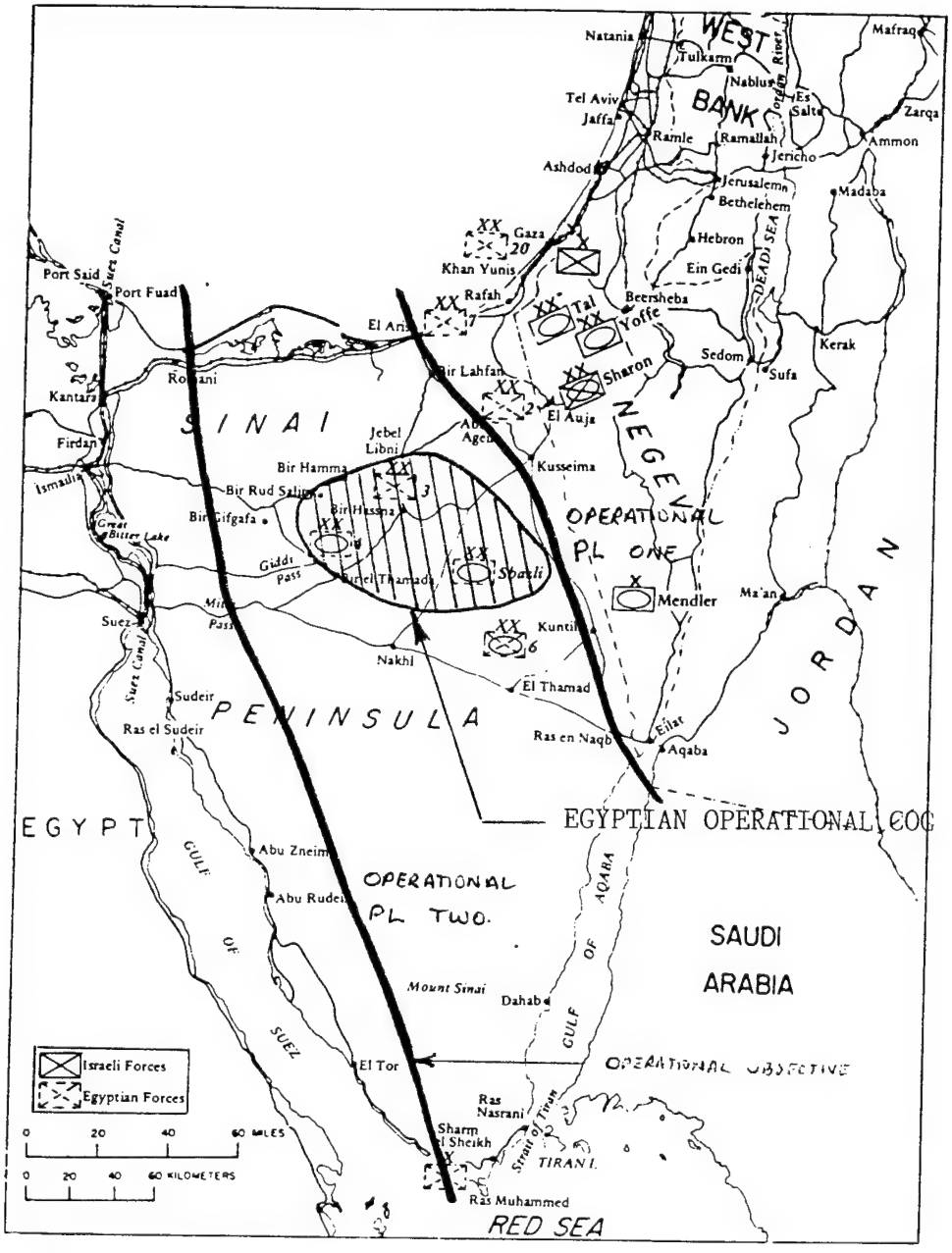
The ground operation was sequenced to follow the first phase of the IAF's preemptive strike. The operational objectives were to: destroy the Egyptian forces in the Sinai; capture Sharm el-Sheikh; and occupy most of the Sinai. To avoid confusion and to demonstrate Israel's synchronization, a brief synopsis of the Sinai operational plan will be presented first followed by the actual results. (See Map 1).

Israel's main effort consisted of a two phase, synchronized three axis attack into the northern one-third of the Sinai. The major tactical objectives of phase one were to neutralize the Egyptian defenses at Rafah and Umm Katef-Abu Ageila. These two fortified complexes blocked the two northern roads into the Sinai. Once this was accomplished, phase two would consist of three divisions enveloping the Egyptian COG in the central Sinai. The operational COG of the Egyptian ground force consisted of the 4th and Shazli Armored Divisions, Egypt's "sword" forces, and the 3rd Infantry Division.

Israel's main effort consisted of three specially designed armored divisions called *ugdah*. Each *ugdah* was named after its commander. In the plan for phase one, *Ugdah* Tal, commanded by Brigadier General Israel Tal, had two tactical objectives. First, he was to break into the Gaza Strip opposite Khan Yunis and neutralize the Egyptian fortification at Rafah. His second objective was to neutralize the forces at El Arish. Brigadier General Ariel Sharon's division was to cross the frontier near Nitzanna simultaneously with Tal's advance and neutralize the stronghold at Umm Katef-Abu Ageila, his major tactical objective. Brigadier General Avraham Yoffe's division was to support the other two movements by advancing through supposedly impenetrable and therefore undefended terrain between the other two divisions. Yoffe's first tactical objective was to establish a road block near the

MAP 1

1967 SINAI CAMPAIGN: OPERATIONAL PLAN



Source: Trevor N. Dupuy, Elusive Victory: The Arab-Israeli Wars, 1947-1974 (New York: Harper and Row, 1978), 232.

town of Bir Lahfan and his second tactical objective was to advance to Jebel-Libni in concert with the other two divisions. Yoffe had to remain synchronized with the other two divisions because he had the vital objective of blocking the Egyptian sword force at Jebel-Libni from advancing toward either Tal at El Arish or Sharon at Abu Ageila.

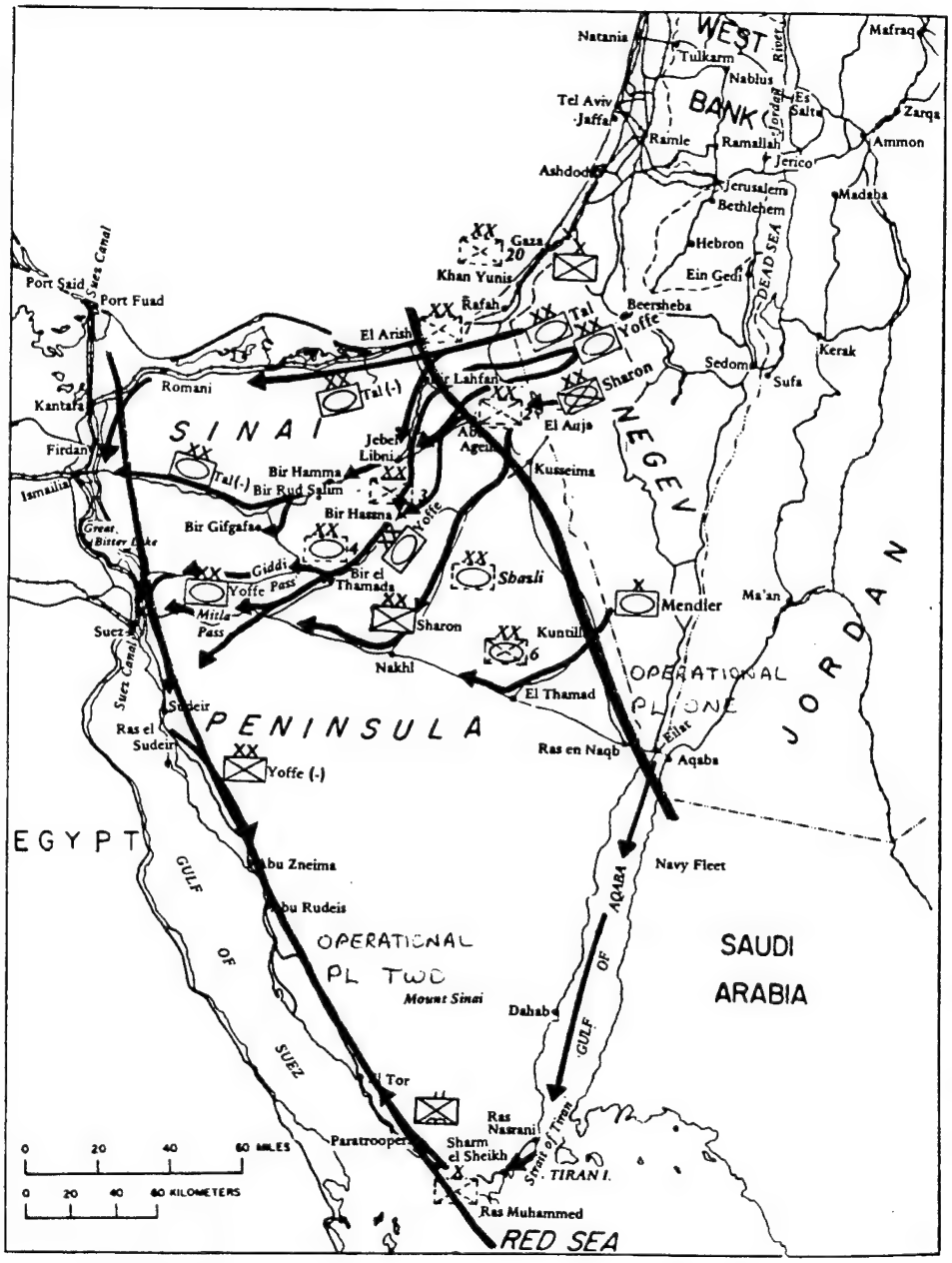
Two additional maneuvers were involved in phase one. Colonel Yehuda Reshef, commanding an armored-infantry brigade, was to advance into the Gaza Strip behind Tal near Kahn Yunis and clear out the eastern end of the Strip and occupy Gaza City, his final tactical objective. In the southern Sinai, Colonel Albert Mendler's brigade was to occupy the city of Kuntilla as part of the operational deception plan simultaneously with the advance of the other three divisions. This was intended to fix the Shazli Task Force, a portion of the Egyptian operational COG, in the South while the operations were proceeding in the North. Mendler was also the operational reserve.[14]

During phase two, Sharon, Tal and Yoffe were to combine and envelop the Egyptian operational COG in the triangle formed by the Mitla Pass, Nakhl and Bir Gifgafa.[15] Also during this phase a combined air and sea assault was planned on Sharm el-Sheikh to open the Straight of Tiran.

The results of the first phase were better than planned. (See Map 2). The shock effects of the air attacks were synchronized with the ground operation and overwhelmed the Egyptian staff just prior to the major thrust of the ground units into the Sinai. The near simultaneous advance of the three divisions in the northern Sinai in concert with Mendler's feint in the South at Kuntilla, and Reshef's advance into Gaza began as scheduled. Tal and Sharon began precisely at 0815 Israeli time on 5 June. Yoffe's advance began approximately

MAP 2

1967 SINAI CAMPAIGN: ISRAELI OFFENSIVE, 5-9 JUNE



Source: Trevor N. Dupuy, Elusive Victory: The Arab-Israeli Wars, 1947-1974 (New York: Harper and Row, 1978), 262.

30 minutes later. Reshef's brigade followed Yoffe as planned to take advantage of the latter's breakthrough on Kahn Yunis before turning east into the Gaza Strip. Tal's division neutralized the northern Egyptian shield force at Kahn Yunis and Rafah using a combination of penetration and envelopment synchronized with close air support (CAS). Tal's final tactical objective of phase one of the operation, El Arish, was secured by 2000 that night in slightly less time than planned. The synchronization plan was flexible enough to allow the early achievement of objectives. General Sharon simultaneously advanced toward his tactical objective of Umm Katef-Abu Ageila with coordinated CAS to help neutralize Egyptian defenses en route. He began his attack on the fortification as scheduled at 2245 on 5 June. The central Egyptian shield at Umm Katef-Abu Ageila was neutralized within 12 hours, as planned.[16] One of Yoffe's brigades established the road block near Bir Lahfan as scheduled on 5 June and, as predicted, successfully prevented two Egyptian armored brigades out of Jebel-Libni from reinforcing their defense against Tal at El Arish.

While the operation was proceeding in the northern Sinai, Colonel Mendler's independent brigade occupied Kuntilla and kept the Egyptian Shazli Task Force engaged.[17] Sharm el-Sheikh was occupied without a struggle because the Egyptians had already withdrawn before the assault was scheduled to occur.

All the tactical objectives of phase one were achieved by the second day of the war. The simultaneous attacks from the multiple-axis IDF invasion with the accompanied decisive results against the main Egyptian strongholds at Rafah and Abu Ageila-Umm Katef paralyzed the Egyptian staff.[18] On the morning of 6 June, Egyptian Field Marshall Mohammed Abd el Hakim Amer, the Egyptian Minister of War, in a state of total confusion ordered all of his forces in the Sinai to withdraw across the Suez Canal.

During this phase, the IDF neutralized two of the three Egyptian shields, and destroyed three Egyptian divisions; however, two infantry and two armor divisions were still at large. Therefore, Brig General Yeshayahu Gavish, Commander of Southern Command re-planed phase two based on the early Egyptian withdrawal to accomplish his final two operational objectives--destroy the Egyptian Army, and occupy the Sinai.[19]

The revised plan sent armored spearheads from Tal and Yoffe's divisions along the three central Sinai roads to close off the Bir Gifgafa, Mitla and Giddi Passes and trap a portion of the remaining Egyptian forces. The remainder of the two divisions combined with Sharon continued a rapid, broad frontal offensive driving the Egyptians into the roadblocks.[20] The IAF was effectively coordinated with the ground advance to interdict and slow the Egyptian withdrawal so the IDF ground forces could drive ahead of the Egyptian forces and block the passes. By 9 June, the IDF was well established on the east bank of the Suez Canal, thus achieving their theater strategic objectives.

Since phase two of the Sinai ground operation was improvised, there was no pre-arranged synchronization plan, although the results indicate that the IDF probably remained synchronized due to the plan's simplicity and by using real time command and control.

Concentration is probably the single most important element of the synchronization process.[21] By fighting an Egypt-first war and maintaining the defensive initially on the Jordanian and Syrian fronts, Israel was able to concentrate most of its air and ground assets against the objective of defeating the Egyptian forces. The major air operation achieved a high concentration of effects and overwhelmed the Egyptian air defenses, totally eliminating the EAF as a functional fighting force within the first six hours of the war, thus giving the ground forces complete freedom of action. Additionally, the three axis ground attack into the

Sinai was like a giant pincer coming together to neutralize the Egyptian operational COG; the 3rd, 4th and Shazli Divisions. The combined synergistic effects of the concentrated air and ground actions overwhelmed the Egyptians, causing their complete collapse. Despite being outnumbered by approximately 40 percent in the Sinai, Israel through the proper synchronization of their ground and air forces, was able to achieve local concentration during the decisive engagements. A Quantified Judgment Method (QJM) analysis showed the IDF achieved a relative combat power ratio of almost two to one over the Egyptians in all the major engagements except the Gaza Strip.[22] This is a true measure of the effectiveness of Israel's synchronization.

CHAPTER III

SYNCHRONIZATION OF OPERATIONAL FUNCTIONS

An operational commander must also synchronize operational functions in time and space in support of major operations.[23] Operational functions are defined as command and control, intelligence, movement and maneuver, fires, logistics and protection. The IAF's preemptive air strikes against Egypt were Israel's only operational fires and was discussed sufficiently above.

Command and Control: The command relationships need to be thoroughly synchronized and understood during the various phases of a major operation or campaign. This begins with a clear and simple commander's concept of operations. Referring to Israel's plan, this is readily seen. Although command relations did not change at the operational level, the Israeli command relationship was straight forward, achieving unity of command from General Rabin

through the component commanders and finally to the division commanders. (See Appendix C). The IDF further followed the concept of adherence to mission or what is currently called the use of task-oriented orders and clarity of commander's intent. All soldiers are provided with as much information about their superior's mission and intent as there was time to tell them. In a state of confusion, or when an opportunity arose, this allowed units to maintain the operational tempo without pausing for further orders.[24] This definitely allowed centralized control and decentralized execution.

Israeli command and control at the division level, however, was occasionally poor. On several occasions Tal lost control of some of his units; however, because the Israelis used task-oriented orders, his subordinates actually achieved their objectives despite the poor communications.[25]

The air operation was controlled by IAF Headquarters (HQ). It functioned as an operational wartime theater command in addition to its peacetime roles. Brigadier General Hod, IAF Commander, was the Air Component Commander (ACC) and was responsible for all air assets except for close air support/battlefield air interdiction (CAS/BAI) sorties.[26] Control and allocation of all CAS/BAI sorties was accomplished by the ground theater commanders through a special air operations office and forward air control units within each command.[27]

Intelligence: Israeli intelligence was also effectively synchronized throughout the prewar and employment phases of the war and played a very important function in the planning process. To defeat the enemy COG, it is necessary to have a clear knowledge of enemy capabilities (ECs) to better synchronize the effects of one's own actions. The IDF was able to do this because they knew Egyptian tactics and order of battle very well. During the

employment phase, the HUMINT, SIGINT and photo intelligence sections of *A'man*, the Israeli Intelligence Organization, were very active and effectively synchronized with the other operations. *A'man* and *Mossad* had infiltrated Egypt's inner military, political and social establishments. *A'man's* SIGINT efforts continually intercepted Egyptian radio transmissions and provided intelligence on the disposition and intentions of their fielded forces. Additionally, with the help of *A'man*, the IAF knew exactly where every Egyptian combat aircraft was located and the IAF pilots were continuously provided with updated photography and other related information on their assigned targets.[28] Returning IAF pilots additionally provided battle damage assessments (BDA) of their mission during each sortie debriefing.

Movement and Maneuver: In the combat employment stage, the operational commander synchronizes movement and maneuver to effectively employ ones forces to achieve the assigned objectives. This includes the disposition of forces before and during battle to gain operational advantage and after battle to exploit success. Synchronizing the forces that execute operational maneuver and the effects created through maneuver with the consequences of other operational activities generates synchronized operations.[29]

The results of the war clearly indicate that the Israeli air and ground operational maneuvers were synchronized. As discussed above, the combined effects of these two major operations paralyzed the Egyptian Staff and Israel achieved its objectives quickly and efficiently. During days one and two of the war, this seems to have been a result of proper detailed planning accompanied by real-time command and control. During phase two, Israel followed an improvised plan, yet the plan was simple and flexible enough to achieve the necessary synchronization to overwhelm the remaining Egyptian forces.

Logistics: The synchronization of operational logistics is important in order to extend operational reach and maintain a high operational tempo. The Israelis had a good plan for synchronizing logistical support, but sometimes it was not executed well. For the ground forces, the IDF had a dynamic tactical re-supply system. In this system the Israeli supply corps sent a steady flow of every type of supply forward without waiting for requests from ever-more-distant front line units. If a front line unit needed something, it only had to request it from the supply section of its own brigade HQs. Additionally, each division had its own support and service unit. To fully integrate logistics with operations, the IDF tactics called for the mechanized infantry unit to widen and clear breakthrough points made by the tank units. Engineers and support units then typically moved through after the mechanized infantry. This "conveyor belt" system allowed, in theory, lead tank battalions to advance continuously since they were sustained by the supply, evacuation and recovery units that followed in their wake.[30]

In practice at the tactical level, Israel did not achieve such great logistic synchronization. Part of the problem stemmed from the maneuver units out running their support units during the high tempo operations. Another problem was caused by Israel's lack of adequate armored off-road supply vehicles that could keep up with advance tank battalions.[31]

IAF maintenance capabilities were taken into consideration when planning the major air operation. First, maintenance crews achieved their remarkably short turn times, approximately ten minutes, through constant practices and competitions before the war began. Second, the sequential phasing of attacks ensured that the attack groups would not overload the maintenance crews and could be turned efficiently.[32]

Protection: The Israelis also effectively synchronized operational protection. Because the IDF was outnumbered by the Arab forces, they took great care to protect their assets. One aspect of Israel's operational protection was indication and warning (I&W) that was provided by both *A'man* and the IAF. *A'man* closely followed Egypt's deployments into the Sinai in the months before the war to warn of a surprise attack.[33] Additionally, IAF reconnaissance aircraft patrolled the southern Mediterranean Sea during the war to detect any approaches of the Egyptian fleet.[34]

To protect their three divisions in the Sinai, Israel's operational COG, the top priority was obtaining air superiority to allow the ground forces to have freedom of action. The targeting priorities during the initial strikes were designed to destroy EAF assets most threatening to Israel first and also ensured that the EAF sortie delivery capacity was immediately effected. Israel's plan was successful because air superiority was achieved within the first few hours of the war. The IAF did not attempt to destroy all of the Egyptian air defenses during the first waves of the air offensive in order to destroy as many EAF aircraft as quickly as possible; however, they did target and effectively neutralize these air defenses on subsequent strikes to protect follow-on IAF strike sorties. During the first wave of the air assault, the IAF effectively neutralized Egyptian defenses through a combination of surprise, ECM to counter the air defense radars, and flying below their radar coverage. On 5 June, despite the heavy allocation of sorties for offensive operations, the IAF allocated 24 aircraft for combat air patrol (CAP) to protect the IAF attack aircraft and IDF ground forces; and 12 for homeland air defense along with two brigades of Hawk surface to air missiles (SAMs). During the war, the IAF lost only 46 aircraft compared to 452 Arab aircraft destroyed. Additionally, the combined Arab forces carried out only limited strikes against Israel. Beginning 7 June, the

IAF provided protection of the vulnerable logistics convoys that were stretched out through narrow passes in the Sinai. This was critical because the IDF had virtually no mobile anti-aircraft artillery (AAA), and therefore, it relied almost entirely on the IAF for protection.[35]

Additionally, the Israeli Navy successfully protected the coastal facilities, population centers, merchant shipping to and from their Mediterranean ports, and their army in the northern Sinai through coastal patrols along the Mediterranean coast. Most of the Egyptian Naval assets in the Mediterranean Sea had withdrawn from the immediate Sinai coastal area because of Israeli naval raids during the night of 5 June; however, Israeli coastal patrols did detect and defend against three Egyptian submarines off the Israeli coast during the night of 6 June.[36]

CHAPTER IV

CONCLUSION

Israel achieved a great military success during the Six Day War due to its sound practice of operational art. They had clear, attainable military objectives and concentrated their forces in the Sinai, the sector of main effort, against Egypt to achieve their operational objectives. The synergistic effects of the near simultaneous major air and ground operations resulted in the almost complete neutralization of the EAF within the first six hours of the war, and the complete collapse of the Egyptian Army in the Sinai within two days-- a definite measure of the effectiveness of their synchronized effort.

Israel also effectively synchronized the operational functions in support of their major operations. The only exception was their logistics. Although the IDF had a good re-supp

system and had planned for logistical considerations, the high tempo of operations and the "fog of war" prevented effective force sustainment on several occasions that could have unraveled Israel's entire plan.

The IDF achieved effective synchronization because of several factors. Israel's plans were relatively simple. The major air operational plan was purposely designed to be simple, requiring little real-time coordination during its execution. The Sinai ground operation was slightly more complex, but was executed properly through effective coordination.

Through unity of command, Israel was able to properly coordinate its forces to achieve unity of effort. Israel's application of task-oriented orders, further enhanced unity of effort because soldiers at all levels in the command understood their superior's mission and intent.

Another key element in Israel's effective synchronization was their full intelligence picture. Israel had a complete knowledge of their enemy's capabilities. This enabled the IDF to derive the proper courses of action to overwhelm the Egyptian defenses and defeat its forces in detail through the proper selection of forces and assignment of tasks.

CHAPTER V

OPERATIONAL LESSONS LEARNED

Synchronization is a very important element in the design of plans at all levels of war. The result of proper synchronization is the concentration of effects, both military and non-military, at the decisive time and place achieved through the proper arrangement of actions. This is a complex process, especially at the operational level, requiring the commander to visualize the effects of the various actions while designing his operational plan. To help in

the design of an effective synchronization scheme and better ensure its success during execution, a commander should adhere to several principles. These include: establishing realistic objectives, clear commander's intent, sound command and control, simplicity, a full intelligence picture, and sufficient logistics for force sustainment.

- The definition of realistic and attainable military objectives is necessary in the operational design of a major operation or campaign so that the operational commander can focus all his efforts at achieving these objectives through the synchronization of all actions, including the operational functions. If planned correctly, the synergistic effects of all the synchronized actions exceeds the sum of the individual actions and is necessary to achieve concentration of combat power at the decisive time and place.

- Clarity of commander's intent is an important element of effective command and control and ensures flexibility in the execution of the synchronization plan. A clear commander's intent enables subordinates to take independent actions toward the unit's objective. Therefore, in the "fog of war," subordinates can react to unforeseen events in the interest of their commander's intent and achieve their objectives without pausing to receive additional orders, thus maintaining the integrity of the established synchronization schedule.

- Sound command and control is the primary means of achieving synchronization at all command levels. Even a detailed and well understood synchronization plan requires real time control to ensure all actions are coordinated to achieve the desired effects. The operational commander needs to balance the constraints of a highly, centralized control, which restricts his subordinate's ability to take advantage of fleeting battlefield opportunities; and too loose of a decentralized execution, sacrificing effective coordination, and therefore

possibly losing synchronization. Once again, clarity of commander's intent is the key to balancing centralized control and decentralized execution.

- Simplicity is paramount. Simple plans promote better understanding and ensures flexibility. Unforeseen events are sure to foil complex plans in the heat of battle. Simple plans are relatively easy to communicate and more readily understood when received. Simplicity contributes directly to synchronization.

- A full intelligence picture is critical. A thorough and timely knowledge of the full spectrum of friendly and enemy capabilities is necessary to properly synchronize a major operation or campaign. Synchronization would be easier if the enemy did not act independently; therefore, all actions and effects must be considered relative to the capabilities the enemy can bring to bear. Consequently, a complete intelligence picture is necessary to correctly assess enemy and friendly strengths, weaknesses, and vulnerabilities. Using this information, an operational commander can derive an effective scheme to properly match his strengths against enemy vulnerabilities to defeat or neutralize the enemy's COG. The synchronization plan is his tool for achieving this concentration of effects at the decisive time and place. Additionally, a thorough knowledge of enemy and friendly capabilities is necessary for a commander to synchronize operational protection.

- Synchronization of logistical support and sustainment, and a high tempo of operations is necessary for combat effectiveness. Proper planning of logistics ensures one's actions are continuous through all phases of a major operation or campaign and provides the capability to exploit successes without reaching one's culminating point. It is just as important to plan logistical matters as the more "glamorous" operational functions. Part of this planning starts before the formal operational planning process begins by prioritizing military expenditures to

procure the proper type and amount of logistical support vehicles, vessels or aircraft. Without the proper means, the supplies can not get to the battlefield where they are needed. Likewise, without detailed planning to synchronize logistics, the equipment or supplies will not arrive at the correct place and time either. In the execution phase, proper coordination with logistical elements is essential to ensure the plan unfolds efficiently to sustain the combat action. Furthermore, it is just as important for logistical matters to be included in the planning of branches and sequels as other operational functions.

APPENDIX A

ISRAELI AND EGYPTIAN FORCE STRENGTHS

TABLE A-1

LAND AND AIR FORCE STRENGTHS

	Israel	Egypt
Manpower	250,000	210,000
Brigades	25	22
Artillery Pieces	200	575
Tanks	1000	1300
APCs	1500	1050
SAMs	50	160
AAA Guns	550	950
Combat Aircraft	286	431
Fighters/Fighter Bombers	262	358
Bombers	24	73

Source: Trevor N. Dupuy, Elusive Victory: The Arab-Israeli Wars, 1947-1974 (New York: Harper and Row, 1978), 337.

TABLE A-2

GROUND FORCES IN THE SINAI CAMPAIGN: JUNE 1967

	Israel	Egypt
Total Manpower	70,000	100,000
Armor Divisions	3	2
Mechanized Divisions		1
Infantry Divisions		4
Infantry Brigades	1	1
Armor Brigades	1	
Tanks	800	930

Source: Trevor N. Dupuy, Elusive Victory: The Arab-Israeli Wars, 1947-1974 (New York: Harper and Row, 1978), 240-244.

APPENDIX B

EGYPTIAN DEFENSIVE TACTICS

Before the war began, Egypt had deployed almost seven divisions into the Sinai Peninsula augmented by one Palestinian Division in the Gaza Strip to establish defensive positions along the eastern border of the Sinai.

Egypt followed Russian-style "sword and shield" defensive tactics. Their main defense consisted of a "shield," an entrenched fortified position, to stop the Israeli forces. Each "shield" had its own artillery and a 100 tank "little sword" force to contend with Israeli armor. See Figure B-1. Additionally, Egypt deployed two large "sword" forces, which were held in reserve and designed to counter attack any Israeli offensive that had either stalled against the shields fortifications and minefields or had broken through the defenses.[37]

To defend the Sinai, Egypt established a fortified defense in depth along the eastern Sinai consisting of three shield forces and two sword forces. See Map 1 for the exact location of Egyptian deployments. The shields defended the major routes into the Sinai. Each shield was stretched out to a point where its flanks were either covered by neighboring forces or by impassable terrain. Two additional infantry divisions protected the flanks of the shields—the 20th Palestinian Infantry Division (PLA) in Gaza and the 3d Egyptian Infantry Division near Jebel-Libni.

The three shields consisted of the following forces:

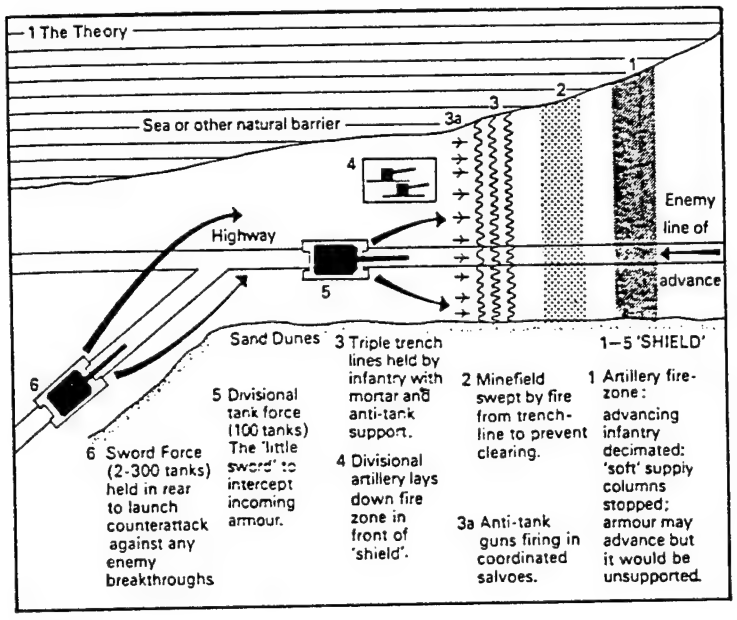
- The 7th Infantry Division at Rafah-El Arish
- The 2d Infantry Division at Umm Katef-Abu Ageila.
- The 6th Mechanized Division in the Kuntilla-Nakhl area.

The two major sword forces were:

- The 4th Armored Division near Bir el Thamada.
- The Shazli Task Force, a combination of an elite commando brigade, tank brigade, and artillery brigade all located between Nakhl and Kusseima.

FIGURE B-1

EGYPT'S SWORD AND SHIELD DEFENSES



Source: Edward Luttwak and Dan Horowitz, The Israeli Army (New York: Harper and Row, 1975), 227.

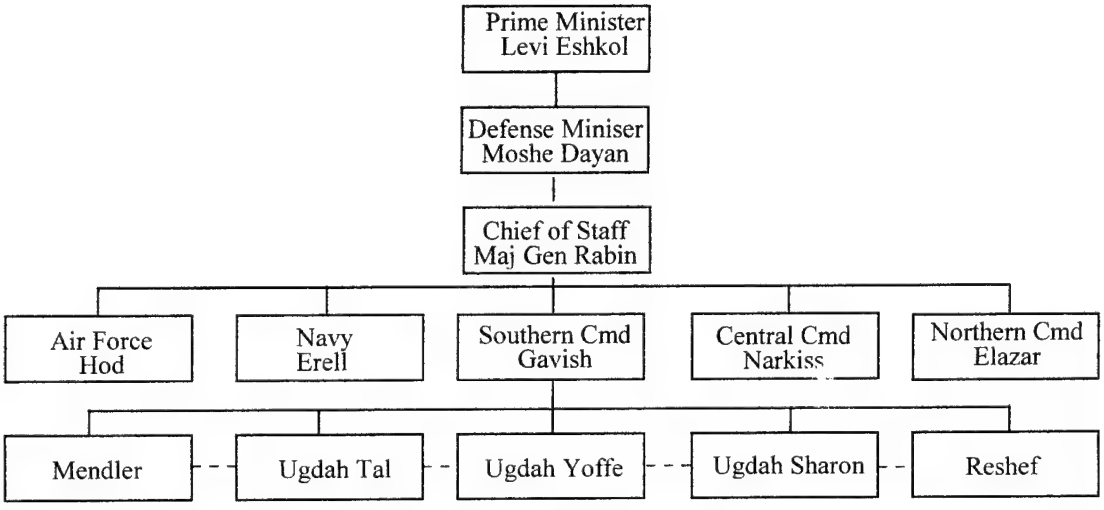
APPENDIX C

ISRAELI COMMAND STRUCTURE

The IDF GHQ Chief of Staff was Maj General Yitzhak Rabin. He reported directly to Defense Minister Moshe Dayan who reported to Israel's Prime Minister, Levi Eshkol. The chain of command below General Rabin was divided into five components: the Israeli Air Force (IAF) commanded by Brigadier General Hod; the Navy under Commander Shlomoh Erell; and three ground component commanders each in charge of a geographic theater. These were the Northern, Central and Southern Commands. The Southern Command was commanded by Brigadier General Yeshayahu Gavish, who was responsible for the Sinai Theater and was directly in charge of the planning for this operation and all the ground forces fighting in this area. Gavish had three specially designed divisions under him called *ugdahs* as well as several other brigades. Each *ugdah* was named after its commander. The Southern command consisted of *Ugdahs* Tal, Sharon and Yoffe. See Figure C-1.

FIGURE C-1

ISRAELI COMMAND STRUCTURE



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[1] JMO Department, "Glossary of Operational Terms," U.S. Naval War College, Newport RI, August 1996, 27.

[2] Timothy D. Lynch, Operational Synchronization: A Revised Doctrinal Perspective (Fort Leavenworth, KS: School of Advanced Military Studies, 1990), 11-28.

[3] Milan Vego, "Operational Synchronization," U.S. Naval War College, Newport, RI, September 1996, 3.

[4] Lynch, 10; Michael E. Haith, CINC-ronization (Synchronization): The Critical Tenent in Future Operational Art (Fort Leavenworth, KS: School of Advanced Military Studies, 1990), 20; Lynch, 5-11.

[5] John B. Rogers, "Synchronizing The Airland Battle," Military Review, April 1986, 69; Vego, 4; Rogers, 68-69.

[6] Vego, 12.

[7] Robert L. Day, The Arab-Israeli Conflict of June 1967: A Limited War (Carlisle Barracks, PA: Army War College, 1973), 22; Peter Young, The Israeli Campaign 1967 (London: William Kimber and Co., 1967), 83.

[8] Eliezer Cohen, Israel's Best Defense: The First Full Story of the Israeli Air Force (New York: Crown Publishers, Inc., 1993), 196; B.L. Blustone and J.P. Peak, Air Superiority and Airfield Attack: Lessons From History (Washington: BDM Corporation, 1984), 126-144.

[9] Blustone and Peak, 143,4.

[10] Edward Luttwak and Dan Horowitz, The Israeli Army (New York: Harper and Row, 1975), 227.

[11] Blustone and Peak, 132.

[12] Ezer Weizman, On Eagles' Wings (New York: Macmillan, 1976), 221; Cohen, 196.

[13] Blustone and Peak, 125,135; Kotsch, 74; Cohen, 196.

[14] Luttwak and Horowitz, 233,4.

[15] Hammel, 160.

[16] Sewall H. Menzel, "Zahal Blitzkrieg," Armor, November-December 1986, 28,9; Trevor N. Dupuy, Elusive Victory: The Arab-Israeli Wars, 1947-1974 (New York: Harper and Row, 1978), 253-258.

[17] Hammel, 244.

[18] Wald, 83.

[19] Luttwak and Horowitz, 250; Due to the Egyptian collapse, Gavish decided to expand his objective to include conquering all of the Sinai instead of the eastern two-thirds as originally planned.

[20] Luttwak and Horowitz, 249.

[21] Vego, 3.

[22] Dupuy, 624.

[23] Vego, 12.

[24] Haith, 35,6; Hammel, 114-128.

[25] van Creveld, 166; Hammel, 202.

[26] van Creveld, 159.

[27] Ibid.

[28] Samuel M. Katz, Soldier Spies (Navato, CA: Presidio, 1992), 189; Blustone and Peak, 142,3.

[29] Vego, 12; Haith, 39.

[30] Hammel, 121; Ibid., 212; Luttwak and Horowitz, 292.

[31] Luttwak and Horowitz, 253.

[32] Blustone and Peak, 143.

[33] Katz, 183-185.

[34] Randolph S. Churchill and Winston S. Churchill, The Six Day War (Boston: Houghton Mifflin Co., 1967), 100.

[35] Luttwak and Horowitz, 227; Kotsch, 73-75; Blustone and Peak, 127; Young, 44; van Creveld, 169.

[36] Kotsch, 80.

[37] Luttwak and Horowitz, 213-234.

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